

Saratovskii gosudarstviennii universitet im. Chernyshevskovo.

The forest on the sample plot itself was composed mainly of pedunculate oak (*Q. robur* L.) with a significant addition of small-leaved lime (*Tilia cordata* Mill.), some common birch (*Betula verrucosa* Ehrh.), and three species of maple: Norway (*A. platanoides*), common (*A. campestris* L.), and very seldom Tartar (*A. tataricum* L.). The underbrush consisted mainly of

by V. L. Golikova

pedunculate oak, Norway maple, small-leaved lime, mountain ash (*S. aucuparia* L.) and hawthorn - hazelcut (*C. avellana* L.). (1) warty-barked spindle-ecology of common field-mice and redbacked voles. Our observations tree (*Euonymus verrucosa* Scopoli) and spindle tree (*E. europea* L.). The conducted in the Voronezh Reserve (zapovednik) allowed us to determine grass cover with a predominance of ivy was very sparse. Frequent were: the peculiarities of settledness of these rodents during the spring- asarabacca (*Aegopodium podagraria* L.), goutweed (*Aegopodium podagraria* L.), summer and fall periods.

common Solomon's seal (*Polygonatum multiflorum* Moench), wonder violet (*Viola* (2) *abilis* L.), noctule (*Nyctalus* sp.), sage (*Pulmonaria* sp.), hair Kvartal in an oak forest from 100-150 years old, and in 1955-1956 sedge (*Carex hirta* L.); more rare appeared to be: orchid (*Plantanthera* sp. a study was conducted in kvartal 288, in an oak forest of the same age. bitter pea (*Lathyrus vernus*), and hedge woundwart (*Stachys sylvatica* L.). Live traps were placed every 10m. in a checkered pattern. Rye bread with The forest floor was covered with numerous windfalls and a great number salted butter was used as bait. Dry leaves were put in the nest compartment of holes of small rodents were found under the trees, under fallen trunks for warmth.

and also in many other places on the same plot.

The sample plot in kvartal 288 was surrounded on three sides by a In the area of our research the following species were recorded: monocultural planted forest and was bordered on the North by a young Common field-mouse (*Apodemus silvaticus* L.), striped field-mouse (*A. forest which was itself bordered on the west grassland. The western agrarius* Pall. L.), yellow-necked field-mouse (*A. flavicollis* Melch. L.), border of the sample plot was a cutline across which was an oak wood. redbacked vole (*Clethrionomys glareolus* Schreb.), field vole (*Microtus*

(1) A.V. Kukkova and V.P. Denisov participated in the research.
transl. Forests in Russia are frequently divided by cutlines into rectangles call "kvartals" (usually 800m x 400m).

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The forest on the sample plot itself was composed mainly of pedunculate oak (Q. robur L) with a significant addition of small-leaved lime (Tilia cordata Mill.), some common birch (Betula verrucosa Ehrh.), and three species of maple: Norway (A. platanoides), common (A. campestre L), and very seldom Tartar (A. tataricum L). The underbrush consisted mainly of pedunculate oak, Norway maple, small-leaved lime, mountain ash (S. aucuparia L) and shrubs - hazelnut (C. avellana L), warty-barked spindle-tree (Enonymus verrucosa Scopoli) and spindle tree (E. europea L.). The grass cover with a predominance of ivy was very sparse. Frequent were: asarabacca (Asarum europaeum L.), goutweed (Aegopodium podagraria L.), common Solomon's seal (Polygonatum multiflorum Moench), wonder violet (Viola mirabilis L.), noctule (Nyctalus sp.), sage (Pulmonaria sp.), hairy sedge (Carex hirta L.); more rare appeared to be: orchid (Plantanthera sp.), bitter pea (Lathyrus vernus), and hedge woundwart (Stachys sylvatica L.). The forest floor was covered with numerous windfalls and a great number of holes of small rodents were found under the trees, under fallen trunks and also in many other places on the same plot.

In the area of our research the following species were recorded: Common field-mouse (Apodemus silvaticus L.), striped field-mouse (A. agrarius Pall. L.), yellow-necked field-mouse (A. flavicolis Melch. L.), redbacked vole (Clethrionomys glareolus Schr b.), field vole (Microtus agrestis L.), common vole (M. arvalis Pall, L.), and forest dormouse

(*Dyromys nitedula* Pall. L.). The dominating species were the common field-mouse and the redbacked vole. In years of high number of common field-mice, the redbacked voles were significantly in decline, and vice versa, with a decline in the number of common field-mice, the number of redbacked voles was significantly higher, and moreover, striped field-mice were observed in the population.

In 1953 and 1955, when a very poor crop of tree seeds was observed, a seasonal change in the specific composition of inhabitants of the sample plot occurred. In the spring and summer the common field-mouse was the dominating species, however, in the fall (September), the number of common field-mice on the sample plot sharply decreased and the number of redbacks increased. However, during these changes the total number of animals within the sample plot (from May to September) was approximately constant.

Fig. 1. - Distribution of common field-mice and redbacked voles on the sample plot during the spring-summer period.

- 1 - places where common field-mice were caught;
- 2 - places where redbacked voles were caught;
- 3 - points where traps were placed;

The size of the circles shows the number of cases in which animals were trapped; shadowed area shows single catches.

Fig. 2. - Distribution of common field-mice and redbacked voles on the sample plot during the fall.

1 to 3 - the same as on Fig. 1.

4 - places where striped field-mice were trapped.

An analysis of colonies of common field-mice and redbacked voles showed that the distribution of animals within the sample plot was uneven. In the spring and summer the common field-mice occupied almost the entire plot, and were especially concentrated in certain parts of it, but the redbacked voles were distributed in separate small colonies (fig. 1). In the fall, the common field-mice occupied only separate, widely scattered areas, contrary to the redbacked voles which were dispersed within the entire territory and were concentrated mainly in places where before the common field-mice were concentrated (fig. 2). The marking showed that the same shelters were used successively by different species. During the summer, one of the main places of concentration in the sample plot was occupied by two adult females of the common field-mouse with a group of young and semiadult animals - males and females. In the fall a concentration of redbacked voles, representing mainly groups of adults of both sexes, apparently preparing for winter was observed in the same place.

During the entire period of our research, a significant part of the population of common field-mice as well as redbacked voles (in almost all

8. 1. - Distribution of common field-mice and redbacked voles on the sample plot during the fall.

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age and sex groups) constituted migrants. Because of this fact the period of occurrence of one or another species on the sample plot did not exceed three months (in 1953 single specimens of the common field-mouse stayed on the sample plot for four months).

In 1956, during a high yield of tree seeds, berries and mushrooms, the dominating species from May till October was the common field-mouse, which in comparison to the years 1953 - 1955 differed in a greater degree of settledness; some animals marked in June were also trapped in October. Redbacked voles were observed only in small numbers during the spring-summer period, and in spite of an increase in their number towards the fall, they preserved their previous subordinate position.

Thus, during years of variable condition of food resources the structure of inhabitation of a territory by forest mouse-like rodents changes also. In the case discussed, a bad crop of tree seeds was the cause of increased mobility of common field-mice, emigrating from the spring-summer range (reproduction ceased already during the first half of the summer). Abandoned shelters were very quickly taken over by redbacked voles (less dependent on abundance of seeds); the tempo of their immigration to the sample plot from adjacent areas increased especially sharply in the fall. When the condition of food resources was good the common field-mice preserved their settledness, and the period of their reproduction was prolonged. The occupation of shelters apparently

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 which preserved their settlements, and the tempo of their
 function was prolonged. The occupation of shelters significantly

prevents the immigration of redbacked voles onto the sample plot, and in the fall their number increases only insignificantly.

Analogous cases of food migrations by common field-mice were mentioned by S.N. Varshavski (Varshavski and others, 1949). Other reports on competition for shelters among common field-mice and house mice are also known (Lavrova and Naumova, 1955).

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GOLIKOVA, V.I.
AUTHOR

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Seasonal peculiarities in
settledness of common field-mice
(Apodemus s. sylvaticus L)
and redbacked voles

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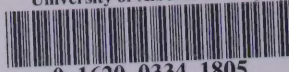
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